VI. SUMMARY OF APPLICABLE FEDERAL STATUTES AND REGULATIONS

This section discusses the Federal regulations that may apply to this sector. The purpose of this section is to highlight and briefly describe the applicable Federal requirements, and to provide citations for more detailed information. The three following sections are included:

- Section VI.A contains a general overview of major statutes
- Section VI.B contains a list of regulations specific to this industry
- Section VI.C contains a list of pending and proposed regulations

The descriptions within Section VI are intended solely for general information. Depending upon the nature or scope of the activities at a particular facility, these summaries may or may not necessarily describe all applicable environmental requirements. Moreover, they do not constitute formal interpretations or clarifications of the statutes and regulations. For further information readers should consult the Code of Federal Regulations and other state or local regulatory agencies. EPA Hotline contacts are also provided for each major statute.

VI.A. General Description of Major Statutes

Resource Conservation And Recovery Act (RCRA)

RCRA of 1976, which amended the Solid Waste Disposal Act, addresses solid (Subtitle D) and hazardous (Subtitle C) waste management activities. The Hazardous and Solid Waste Amendments (HSWA) of 1984 strengthened RCRA's waste management provisions and added Subtitle I, which governs underground storage tanks (USTs).

Regulations promulgated pursuant to Subtitle C of RCRA (40 CFR Parts 260-299) establish a "cradle-to-grave" system governing hazardous waste from the point of generation to disposal. RCRA hazardous wastes include the specific materials listed in the regulations (commercial chemical products, designated with the code "P" or "U"; hazardous wastes from specific industries/sources, designated with the code "K"; or hazardous wastes from non-specific sources, designated with the code "F") or materials which exhibit a hazardous waste characteristic (ignitibility, corrosivity, reactivity, or toxicity and designated with the code "D").

Regulated entities that generate hazardous waste are subject to waste accumulation, manifesting, and record keeping standards. Facilities that treat, store, or dispose of hazardous waste must obtain a permit, either from EPA or from a State agency which EPA has authorized to implement the permitting program. Subtitle C permits contain general facility standards such as contingency plans, emergency procedures, record keeping and reporting requirements, financial assurance mechanisms, and unit-specific standards. RCRA also contains provisions (40 CFR Part 264 Subpart S

and §264.10) for conducting corrective actions which govern the cleanup of releases of hazardous waste or constituents from solid waste management units at RCRA-regulated facilities.

Although RCRA is a Federal statute, many States implement the RCRA program. Currently, EPA has delegated its authority to implement various provisions of RCRA to 46 of the 50 States.

Most RCRA requirements are not industry specific but apply to any company that transports, treats, stores, or disposes of hazardous waste. Here are some important RCRA regulatory requirements:

- **Identification of Solid and Hazardous Wastes** (40 CFR Part 261) lays out the procedure every generator should follow to determine whether the material created is considered a hazardous waste, solid waste, or is exempted from regulation.

- **Standards for Generators of Hazardous Waste** (40 CFR Part 262) establishes the responsibilities of hazardous waste generators including obtaining an ID number, preparing a manifest, ensuring proper packaging and labeling, meeting standards for waste accumulation units, and record keeping and reporting requirements. Generators can accumulate hazardous waste for up to 90 days (or 180 days depending on the amount of waste generated) without obtaining a permit.

- **Land Disposal Restrictions** (LDRs) are regulations prohibiting the disposal of hazardous waste on land without prior treatment. Under the LDRs (40 CFR 268), materials must meet land disposal restriction (LDR) treatment standards prior to placement in a RCRA land disposal unit (landfill, land treatment unit, waste pile, or surface impoundment). Wastes subject to the LDRs include solvents, electroplating wastes, heavy metals, and acids. Generators of waste subject to the LDRs must provide notification of such to the designated TSD facility to ensure proper treatment prior to disposal.

- **Used Oil** storage and disposal regulations (40 CFR Part 279) do not define **Used Oil Management Standards** impose management requirements affecting the storage, transportation, burning, processing, and re-refining of the used oil. For parties that merely generate used oil, regulations establish storage standards. For a party considered a used oil marketer (one who generates and sells off-specification used oil directly to a used oil burner), additional tracking and paperwork requirements must be satisfied.

- **Tanks and Containers** used to store hazardous waste with a high volatile organic concentration must meet emission standards under

RCRA. Regulations (40 CFR Part 264-265, Subpart CC) require generators to test the waste to determine the concentration of the waste, to satisfy tank and container emissions standards, and to inspect and monitor regulated units. These regulations apply to all facilities who store such waste, including generators operating under the 90-day accumulation rule.

- **Underground Storage Tanks** (USTs) containing petroleum and hazardous substance are regulated under Subtitle I of RCRA. Subtitle I regulations (40 CFR Part 280) contain tank design and release detection requirements, as well as financial responsibility and corrective action standards for USTs. The UST program also establishes increasingly stringent standards, including upgrade requirements for existing tanks, that must be met by 1998.

- **Boilers and Industrial Furnaces** (BIFs) that use or burn fuel containing hazardous waste must comply with strict design and operating standards. BIF regulations (40 CFR Part 266, Subpart H) address unit design, provide performance standards, require emissions monitoring, and restrict the type of waste that may be burned.

EPA's RCRA/Superfund/UST Hotline, at (800) 424-9346, responds to questions and distributes guidance regarding all RCRA regulations. The RCRA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., ET, excluding Federal holidays.

Comprehensive Environmental Response, Compensation, And Liability Act (CERCLA)

CERCLA, a 1980 law commonly known as Superfund, authorizes EPA to respond to releases, or threatened releases, of hazardous substances that may endanger public health, welfare, or the environment. CERCLA also enables EPA to force parties responsible for environmental contamination to clean it up or to reimburse the Superfund for response costs incurred by EPA. The Superfund Amendments and Reauthorization Act (SARA) of 1986 revised various sections of CERCLA, extended the taxing authority for Superfund, and created a free-standing law, SARA Title III, also known as the Emergency Planning and Community Right-to-Know Act (EPCRA).

The CERCLA **hazardous substance release reporting regulations** (40 CFR Part 302) direct the person in charge of a facility to report to the National Response Center (NRC) any environmental release of a hazardous substance which exceeds a reportable quantity. Reportable quantities are defined and listed in 40 CFR §302.4. A release report may trigger a response by EPA, or by one or more Federal or State emergency response authorities.

EPA implements **hazardous substance responses** according to procedures outlined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300). The NCP includes provisions for permanent cleanups, known as remedial actions, and other cleanups referred to as "removals." EPA generally takes remedial actions only at sites on the National Priorities List (NPL), which currently includes approximately 1300 sites. Both EPA and states can act at other sites; however, EPA provides responsible parties the opportunity to conduct removal and remedial actions and encourages community involvement throughout the Superfund response process.

EPA's RCRA/Superfund/UST Hotline, at (800) 424-9346, answers questions and references guidance pertaining to the Superfund program. The CERCLA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., ET, excluding Federal holidays.

Emergency Planning And Community Right-To-Know Act (EPCRA)

The Superfund Amendments and Reauthorization Act (SARA) of 1986 created EPCRA, also known as SARA Title III, a statute designed to improve community access to information about chemical hazards and to facilitate the development of chemical emergency response plans by State and local governments. EPCRA required the establishment of State emergency response commissions (SERCs), responsible for coordinating certain emergency response activities and for appointing local emergency planning committees (LEPCs).

EPCRA and the EPCRA regulations (40 CFR Parts 350-372) establish four types of reporting obligations for facilities which store or manage specified chemicals:

- **EPCRA §302** requires facilities to notify the SERC and LEPC of the presence of any "extremely hazardous substance" (the list of such substances is in 40 CFR Part 355, Appendices A and B) if it has such substance in excess of the substance's threshold planning quantity, and directs the facility to appoint an emergency response coordinator.

- **EPCRA §304** requires the facility to notify the SERC and the LEPC in the event of a release exceeding the reportable quantity of a CERCLA hazardous substance or an EPCRA extremely hazardous substance.

- **EPCRA §311 and §312** require a facility at which a hazardous chemical, as defined by the Occupational Safety and Health Act, is present in an amount exceeding a specified threshold to submit to the SERC, LEPC and local fire department material safety data sheets (MSDSs) or lists of MSDS's and hazardous chemical

inventory forms (also known as Tier I and II forms). This information helps the local government respond in the event of a spill or release of the chemical.

- **EPCRA §313** requires manufacturing facilities included in SIC codes 20 through 39, which have ten or more employees, and which manufacture, process, or use specified chemicals in amounts greater than threshold quantities, to submit an annual toxic chemical release report. This report, commonly known as the Form R, covers releases and transfers of toxic chemicals to various facilities and environmental media, and allows EPA to compile the national Toxic Release Inventory (TRI) database.

All information submitted pursuant to EPCRA regulations is publicly accessible, unless protected by a trade secret claim.

EPA's EPCRA Hotline, at (800) 535-0202, answers questions and distributes guidance regarding the emergency planning and community right-to-know regulations. The EPCRA Hotline operates weekdays from 8:30 a.m. to 7:30 p.m., ET, excluding Federal holidays.

Clean Water Act (CWA)

The primary objective of the Federal Water Pollution Control Act, commonly referred to as the CWA, is to restore and maintain the chemical, physical, and biological integrity of the nation's surface waters. Pollutants regulated under the CWA include "priority" pollutants and various toxic pollutants; "conventional" pollutants, such as biochemical oxygen demand (BOD), total suspended solids (TSS), fecal coliform, oil and grease, and pH; and "non-conventional" pollutants which are pollutants not identified as either conventional or priority.

The CWA regulates both direct and indirect discharges. The **National Pollutant Discharge Elimination System (NPDES)** program (CWA §402) controls direct discharges into navigable waters. Direct discharges or "point source" discharges are from sources such as pipes and sewers. NPDES permits, issued by either EPA or an authorized State (EPA has authorized approximately forty States to administer the NPDES program), contain industry-specific, technology-based and/or water quality-based limits, and establish pollutant monitoring requirements. A facility that intends to discharge into the nation's waters must obtain a permit prior to initiating its discharge. A permit applicant must provide quantitative analytical data identifying the types of pollutants present in the facility's effluent. The permit will then set forth the conditions and effluent limitations under which a facility may make a discharge.

A NPDES permit may also include discharge limits based on Federal or State water quality criteria or standards that were designed to protect

designated uses of surface waters, such as supporting aquatic life or recreation. These standards, unlike the technological standards, generally do not take into account technological feasibility or costs. Water quality criteria and standards vary from state to state, and site to site, depending on the use classification of the receiving body of water. Most states follow EPA guidelines, which propose aquatic life and human health criteria for many of the 126 priority pollutants.

Storm Water Discharges

In 1987 the CWA was amended to require EPA to establish a program to address **storm water discharges**. In response, EPA promulgated the NPDES storm water permit application regulations. Storm water discharge associated with industrial activity means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw material storage areas at an industrial plant (40 CFR 122.26 (b)(14)). These regulations require that facilities with the following storm water discharges apply for an NPDES permit: (1) a discharge associated with industrial activity; (2) a discharge from a large or medium municipal storm sewer system; or (3) a discharge which EPA or the State determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

The term "storm water discharge associated with industrial activity" means a storm water discharge from one of 11 categories of industrial activity defined at 40 CFR 122.26. Six of the categories are defined by SIC codes while the other five are identified through narrative descriptions of the regulated industrial activity. If the primary SIC code of the facility is one of those identified in the regulations, the facility is subject to the storm water permit application requirements. If any activity at a facility is covered by one of the five narrative categories, storm water discharges from those areas where the activities occur are subject to storm water discharge permit application requirements.

Those facilities/activities that are subject to storm water discharge permit application requirements are identified below. To determine whether a particular facility falls within one of these categories, the regulation should be consulted.

Category i: Facilities subject to storm water effluent guidelines, new source performance standards, or toxic pollutant effluent standards.

Category ii: Facilities classified as SIC 24-lumber and wood products (except wood kitchen cabinets); SIC 26-paper and allied products (except paperboard containers and products); SIC 28-chemicals and allied products (except drugs and paints); SIC 291-petroleum refining; and SIC 311-leather tanning and finishing.

Category iii: Facilities classified as SIC 10-metal mining; SIC 12-coal mining; SIC 13-oil and gas extraction; and SIC 14-nonmetallic mineral mining.

Category iv: Hazardous waste treatment, storage, or disposal facilities.

Category v: Landfills, land application sites, and open dumps that receive or have received industrial wastes.

Category vi: Facilities classified as SIC 5015-used motor vehicle parts; and SIC 5093-automotive scrap and waste material recycling facilities.

Category vii: Steam electric power generating facilities.

Category viii: Facilities classified as SIC 40-railroad transportation; SIC 41-local passenger transportation; SIC 42-trucking and warehousing (except public warehousing and storage); SIC 43-U.S. Postal Service; SIC 44-water transportation; SIC 45-transportation by air; and SIC 5171-petroleum bulk storage stations and terminals.

Category ix: Sewage treatment works.

Category x: Construction activities except operations that result in the disturbance of less than five acres of total land area.

Category xi: Facilities classified as SIC 20-food and kindred products; SIC 21-tobacco products; SIC 22-textile mill products; SIC 23-apparel related products; SIC 2434-wood kitchen cabinets manufacturing; SIC 25-furniture and fixtures; SIC 265-paperboard containers and boxes; SIC 267-converted paper and paperboard products; SIC 27-printing, publishing, and allied industries; SIC 283-drugs; SIC 285-paints, varnishes, lacquer, enamels, and allied products; SIC 30-rubber and plastics; SIC 31-leather and leather products (except leather and tanning and finishing); SIC 323-glass products; SIC 34-fabricated metal products (except fabricated structural metal); SIC 35-industrial and commercial machinery and computer equipment; SIC 36-electronic and other electrical equipment and components; SIC 37-transportation equipment (except ship and boat building and repairing); SIC 38-measuring, analyzing, and controlling instruments; SIC 39-miscellaneous manufacturing industries; and SIC 4221-4225-public warehousing and storage.

Pretreatment Program

Another type of discharge that is regulated by the CWA is one that goes to a publicly-owned treatment works (POTWs). The national **pretreatment program** (CWA §307(b)) controls the indirect discharge of pollutants to POTWs by "industrial users." Facilities regulated under §307(b) must

meet certain pretreatment standards. The goal of the pretreatment program is to protect municipal wastewater treatment plants from damage that may occur when hazardous, toxic, or other wastes are discharged into a sewer system and to protect the quality of sludge generated by these plants. Discharges to a POTW are regulated primarily by the POTW itself, rather than the State or EPA.

EPA has developed technology-based standards for industrial users of POTWs. Different standards apply to existing and new sources within each category. "Categorical" pretreatment standards applicable to an industry on a nationwide basis are developed by EPA. In addition, another kind of pretreatment standard, "local limits," are developed by the POTW in order to assist the POTW in achieving the effluent limitations in its NPDES permit.

Regardless of whether a State is authorized to implement either the NPDES or the pretreatment program, if it develops its own program, it may enforce requirements more stringent than Federal standards.

EPA's Office of Water, at (202) 260-5700, will direct callers with questions about the CWA to the appropriate EPA office. EPA also maintains a bibliographic database of Office of Water publications which can be accessed through the Ground Water and Drinking Water resource center, at (202) 260-7786.

Safe Drinking Water Act (SDWA)

The SDWA mandates that EPA establish regulations to protect human health from contaminants in drinking water. The law authorizes EPA to develop national drinking water standards and to create a joint Federal-State system to ensure compliance with these standards. The SDWA also directs EPA to protect underground sources of drinking water through the control of underground injection of liquid wastes.

EPA has developed primary and secondary drinking water standards under its SDWA authority. EPA and authorized states enforce the primary drinking water standards, which are, contaminant-specific concentration limits that apply to certain public drinking water supplies. Primary drinking water standards consist of maximum contaminant level goals (MCLGs), which are non-enforceable health-based goals, and maximum contaminant levels (MCLs), which are enforceable limits set as close to MCLGs as possible, considering cost and feasibility of attainment.

The SDWA **Underground Injection Control** (UIC) program (40 CFR Parts 144-148) is a permit program which protects underground sources of drinking water by regulating five classes of injection wells. UIC permits include design, operating, inspection, and monitoring requirements. Wells used to inject hazardous wastes must also comply

with RCRA corrective action standards in order to be granted a RCRA permit, and must meet applicable RCRA land disposal restrictions standards. The UIC permit program is primarily state-enforced, since EPA has authorized all but a few states to administer the program.

The SDWA also provides for a Federally-implemented Sole Source Aquifer program, which prohibits Federal funds from being expended on projects that may contaminate the sole or principal source of drinking water for a given area, and for a State-implemented Wellhead Protection program, designed to protect drinking water wells and drinking water recharge areas.

EPA's Safe Drinking Water Hotline, at (800) 426-4791, answers questions and distributes guidance pertaining to SDWA standards. The Hotline operates from 9:00 a.m. through 5:30 p.m., ET, excluding Federal holidays.

Toxic Substances Control Act (TSCA)

TSCA granted EPA authority to create a regulatory framework to collect data on chemicals in order to evaluate, assess, mitigate, and control risks which may be posed by their manufacture, processing, and use. TSCA provides a variety of control methods to prevent chemicals from posing unreasonable risk.

TSCA standards may apply at any point during a chemical's life cycle. Under TSCA §5, EPA has established an inventory of chemical substances. If a chemical is not already on the inventory, and has not been excluded by TSCA, a premanufacture notice (PMN) must be submitted to EPA prior to manufacture or import. The PMN must identify the chemical and provide available information on health and environmental effects. If available data are not sufficient to evaluate the chemicals effects, EPA can impose restrictions pending the development of information on its health and environmental effects. EPA can also restrict significant new uses of chemicals based upon factors such as the projected volume and use of the chemical.

Under TSCA §6, EPA can ban the manufacture or distribution in commerce, limit the use, require labeling, or place other restrictions on chemicals that pose unreasonable risks. Among the chemicals EPA regulates under §6 authority are asbestos, chlorofluorocarbons (CFCs), and polychlorinated biphenyls (PCBs).

EPA's TSCA Assistance Information Service, at (202) 554-1404, answers questions and distributes guidance pertaining to Toxic Substances Control Act standards. The Service operates from 8:30 a.m. through 4:30 p.m., ET, excluding Federal holidays.

Clean Air Act (CAA)

The CAA and its amendments, including the Clean Air Act Amendments (CAAA) of 1990, are designed to "protect and enhance the nation's air resources so as to promote the public health and welfare and the productive capacity of the population." The CAA consists of six sections, known as Titles, which direct EPA to establish national standards for ambient air quality and for EPA and the States to implement, maintain, and enforce these standards through a variety of mechanisms. Under the CAAA, many facilities will be required to obtain permits for the first time. State and local governments oversee, manage, and enforce many of the requirements of the CAAA. CAA regulations appear at 40 CFR Parts 50-99.

Pursuant to Title I of the CAA, EPA has established national ambient air quality standards (NAAQSs) to limit levels of "criteria pollutants," including carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur dioxide. Geographic areas that meet NAAQSs for a given pollutant are classified as attainment areas; those that do not meet NAAQSs are classified as non-attainment areas. Under §110 of the CAA, each State must develop a State Implementation Plan (SIP) to identify sources of air pollution and to determine what reductions are required to meet Federal air quality standards.

Title I also authorizes EPA to establish New Source Performance Standards (NSPSs), which are nationally uniform emission standards for new stationary sources falling within particular industrial categories. NSPSs are based on the pollution control technology available to that category of industrial source but allow the affected industries the flexibility to devise a cost-effective means of reducing emissions.

Under Title I, EPA establishes and enforces National Emission Standards for Hazardous Air Pollutants (NESHAPs), nationally uniform standards oriented towards controlling particular hazardous air pollutants (HAPs). Title III of the CAAA further directed EPA to develop a list of sources that emit any of 189 HAPs, and to develop regulations for these categories of sources. To date, EPA has listed 174 categories and developed a schedule for the establishment of emission standards. The emission standards will be developed for both new and existing sources based on "maximum achievable control technology (MACT)." The MACT is defined as the control technology achieving the maximum degree of reduction in the emission of the HAPs, taking into account cost and other factors.

Title II of the CAA pertains to mobile sources, such as cars, trucks, buses, and planes. Reformulated gasoline, automobile pollution control devices, and vapor recovery nozzles on gas pumps are a few of the mechanisms EPA uses to regulate mobile air emission sources.

Title IV establishes a sulfur dioxide emissions program designed to reduce the formation of acid rain. Reduction of sulfur dioxide releases will be obtained by granting to certain sources limited emissions allowances, which, beginning in 1995, will be set below previous levels of sulfur dioxide releases.

Title V of the CAAA of 1990 created a permit program for all "major sources" (and certain other sources) regulated under the CAA. One purpose of the operating permit is to include in a single document all air emissions requirements that apply to a given facility. States are developing the permit programs in accordance with guidance and regulations from EPA. Once a State program is approved by EPA, permits will be issued and monitored by that State.

Title VI is intended to protect stratospheric ozone by phasing out the manufacture of ozone-depleting chemicals and restrict their use and distribution. Production of Class I substances, including 15 kinds of chlorofluorocarbons (CFCs), will be phased out entirely by the year 2000, while certain hydrochlorofluorocarbons (HCFCs) will be phased out by 2030.

EPA's Control Technology Center, at (919) 541-0800, provides general assistance and information on CAA standards. The Stratospheric Ozone Information Hotline, at (800) 296-1996, provides general information about regulations promulgated under Title VI of the CAA, and EPA's EPCRA Hotline, at (800) 535-0202, answers questions about accidental release prevention under CAA §112(r). In addition, the Technology Transfer Network Bulletin Board System (modem access (919) 541-5742)) includes recent CAA rules, EPA guidance documents, and updates of EPA activities.

VI.B. Industry Specific Requirements

The organic chemical industry is affected by nearly all federal environmental statutes. In addition, the industry is subject to numerous laws and regulations from state and local governments designed to protect and improve the nation's health, safety, and environment. A summary of the major federal regulations affecting the chemical industry follows. The Synthetic Organic Chemical Manufacturer's Association is undertaking a year-long study to identify the environmental regulations that apply to their members. The study should be available in early 1996.

Federal Statutes

Toxic Substances Control Act (TSCA)

TSCA gives the Environmental Protection Agency comprehensive authority to regulate any chemical substance whose manufacture,

processing, distribution in commerce, use or disposal may present an unreasonable risk of injury to health or the environment. Three sections are of primary importance to the organic chemical industry. TSCA § 5 mandates that chemical companies submit pre-manufacture notices that provide information on health and environmental effects for each new product and test existing products for these effects (40 CFR Part 720). TSCA §4 authorizes the EPA to require testing of certain substances (40 CFR Part 790). TSCA §6 gives the EPA authority to prohibit, limit or ban the manufacture, process and use of chemicals (40 CFR Part 750). To date over 20,000 premanufacturing notices have been filed.

Clean Air Act

The original CAA authorized EPA to set limits on chemical plant emissions. Many of these new source performance standards (NSPS) apply to organic chemical manufacturers including those for flares (40 CFR Part 60 Subpart A), storage vessels (40 CFR Part 60 Subpart K), synthetic organic chemical manufacturers equipment leaks (40 CFR Part 60 Subpart VV), synthetic organic chemicals manufacturers using air oxidation processes (40 CFR Part 60 Subpart III), distillation operations (40 CFR Part 60 Subpart NNN), reactor processes (40 CFR Part 60 Subpart RRR), and wastewater (40 CFR Part 60 Subpart YYY).

The Clean Air Act Amendments of 1990 set control standards by industrial sources for 41 pollutants to be met by 1995 and for 148 other pollutants to be reached by 2003. Several provisions affect the organic chemical industry. Under the air toxics provisions of the CAAA, more sources are covered including small businesses. In April 1994, the EPA proposed regulations to reduce air toxics emissions at chemical plants. The Hazardous Organic National Emissions Standard for Hazardous Air Pollutants, also known as HON, covers hundreds of chemical plants and thousands of chemical process units (40 CFR Part 63 Subparts F, G, H, I, J, K). The HON also includes innovative provisions such as emissions trading, that offer industry flexibility in complying with the rule's emissions goals. Subsets of the industry are regulated under other National Emission Standards for Hazardous Air Pollutants (NESHAP). These include vinyl chloride manufacturers (40 CFR Part 61 Subpart F), benzene emission from ethylbenzene/styrene manufacturers (40 CFR Part 61 Subpart I), benzene equipment leaks (40 CFR Part 61 Subpart J), emissions from storage tanks (40 CFR Part 61 Subpart K), benzene emissions from benzene transfer operations (40 CFR Part 61 Subpart BB), and benzene waste operations (40 CFR Part 61 Subpart FF). Another NESHAP that may affect organic chemical manufacturers is that for treatment, storage, and disposal facilities (TSDF) (40 Part CFR 63 Subpart AA). CAAA provisions on oxygenated additives for reformulated gasoline have also affected the chemical industry by encouraging production of the oxygenates methyl *tert*-butyl ether and ethyl *tert*-butyl ether.

Title V of the CAA introduces a new permit system that will require all major sources to obtain operating permits to cover all applicable control requirements. States were required to develop and implement the program in 1993 and the first permits were to be issued in 1995.

Clean Water Act

The Clean Water Act, first passed in 1972 and amended in 1977 and 1987, gives EPA the authority to regulate effluents from sewage treatment works, chemical plants, and other industrial sources into waters. The act sets "best available" technology standards for treatment of wastes for both direct and indirect (to a Publicly Owned Treatment Works) discharges. In 1987, EPA proposed final effluent guidelines for the organic, polymer and synthetic fiber industry. The majority of this rule was upheld by the federal courts. A final proposal for the remaining portions of the rule was issued in August 1993. The implementation of the guidelines is left to the states who issue National Pollutant Discharge Elimination System (NPDES) permits for each facility.

The Storm Water Rule (40 CFR §122.26(b)(14) Subparts (i, ii)) requires the capture and treatment of stormwater at facilities producing chemicals and allied products, including industrial organic chemical manufacture. Required treatment will remove from stormwater flows a large fraction of both conventional pollutants, such as suspended solids and biological oxygen demand (BOD), as well as toxic pollutants, such as certain metals and organic compounds.

Superfund

The Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) provide the basic legal framework for the federal "Superfund" program to clean up abandoned hazardous waste sites (40 CFR Part 305). The 1986 SARA legislation extended those taxes for five years and adopted a new broad-based corporate environmental tax. In 1990, Congress passed a simple reauthorization that did not substantially change the law but extended the program authority until 1994 and the taxing authority until 1995. The chemical industry (all SIC codes) pays about $300 million a year in Superfund chemical feedstock taxes. A comprehensive reauthorization was considered in 1994. The industry believes several serious concerns need to be addressed including the liability standard which threatens Potentially Responsible Parties (PRPs) with the entire cost of clean-up at sites even though they may be responsible for only a tiny fraction of the waste; clean-up requirements, which are often unaffordable, unattainable, and unjustified by the risks presented by the sites; and the punitive, adversarial nature of the enforcement program.

Title III of the 1986 SARA amendments (also known as Emergency Response and Community Right-to-Know Act, EPCRA) requires all manufacturing facilities, including chemical facilities, to report annual information to the public about stored toxic substances as well as release of these substances into the environment (42 U.S.C. 9601). This is known as the Toxic Release Inventory (TRI). Between 1988 and 1993 TRI emissions by chemical companies to air, land, and water were reduced 44 percent. EPCRA also establishes requirements for federal, state, and local governments regarding emergency planning. In 1994, over 300 more chemicals were added to the list of chemicals for which reporting is required.

VI.C. Pending and Proposed Regulatory Requirements

Chemical Inventory Update Rule

Every four years chemical manufacturers must report to EPA on their manufacture, importation, and, in 1994, use of chemicals on the Toxic Substances Control Act inventory.

VII. COMPLIANCE AND ENFORCEMENT PROFILE

Background

To date, EPA has focused much of its attention on measuring compliance with specific environmental statutes. This approach allows the Agency to track compliance with the Clean Air Act, the Resource Conservation and Recovery Act, the Clean Water Act, and other environmental statutes. Within the last several years, the Agency has begun to supplement single-media compliance indicators with facility-specific, multimedia indicators of compliance. In doing so, EPA is in a better position to track compliance with all statutes at the facility level, and within specific industrial sectors.

A major step in building the capacity to compile multimedia data for industrial sectors was the creation of EPA's Integrated Data for Enforcement Analysis (IDEA) system. IDEA has the capacity to "read into" the Agency's single-media databases, extract compliance records, and match the records to individual facilities. The IDEA system can match Air, Water, Waste, Toxics/Pesticides/EPCRA, TRI, and Enforcement Docket records for a given facility, and generate a list of historical permit, inspection, and enforcement activity. IDEA also has the capability to analyze data by geographic area and corporate holder. As the capacity to generate multimedia compliance data improves, EPA will make available more in-depth compliance and enforcement information. Additionally, sector-specific measures of success for compliance assistance efforts are under development.

Compliance and Enforcement Profile Description

Using inspection, violation, and enforcement data from the IDEA system, this section provides information regarding the historical compliance and enforcement activity of this sector. In order to mirror the facility universe reported in the Toxic Chemical Profile, the data reported within this section consists of records only from the TRI reporting universe. With this decision, the selection criteria are consistent across sectors with certain exceptions. For the sectors that do not normally report to the TRI program, data have been provided from EPA's Facility Indexing System (FINDS) which tracks facilities in all media databases. Please note, in this section, EPA does not attempt to define the actual number of facilities that fall within each sector. Instead, the section portrays the records of a subset of facilities within the sector that are well defined within EPA databases.

As a check on the relative size of the full sector universe, most notebooks contain an estimated number of facilities within the sector according to the Bureau of Census (See Section II). With sectors dominated by small businesses, such as metal finishers and printers, the reporting universe within the EPA databases may be small in comparison to Census data.

However, the group selected for inclusion in this data analysis section should be consistent with this sector's general makeup.

Following this introduction is a list defining each data column presented within this section. These values represent a retrospective summary of inspections and enforcement actions, and solely reflect EPA, State, and local compliance assurance activities that have been entered into EPA databases. To identify any changes in trends, the EPA ran two data queries, one for the five calendar years August 10, 1990 to August 9, 1995, and the other for the most recent twelve-month period, August 10, 1994 to August 9, 1995. The five-year analysis gives an average level of activity for that period for comparison to the more recent activity.

Because most inspections focus on single-media requirements, the data queries presented in this section are taken from single media databases. These databases do not provide data on whether inspections are state/local or EPA-led. However, the table breaking down the universe of violations does give the reader a crude measurement of the EPA's and states' efforts within each media program. The presented data illustrate the variations across regions for certain sectors.[f] This variation may be attributable to state/local data entry variations, specific geographic concentrations, proximity to population centers, sensitive ecosystems, highly toxic chemicals used in production, or historical noncompliance. Hence, the exhibited data do not rank regional performance or necessarily reflect which regions may have the most compliance problems.

Compliance and Enforcement Data Definitions

General Definitions

Facility Indexing System (FINDS) -- this system assigns a common facility number to EPA single-media permit records. The FINDS identification number allows EPA to compile and review all permit, compliance, enforcement, and pollutant release data for any given regulated facility.

Integrated Data for Enforcement Analysis (IDEA) -- is a data integration system that can retrieve information from the major EPA program office databases. IDEA uses the FINDS identification number to "glue together" separate data records from EPA's databases. This is done to create a "master list" of data records for any given facility. Some of the data systems accessible through IDEA are: AIRS (Air Facility Indexing

[f] EPA Regions include the following states: I (CT, MA, ME, RI, NH, VT); II (NJ, NY, PR, VI); III (DC, DE, MD, PA, VA, WV); IV (AL, FL, GA, KY, MS, NC, SC, TN); V (IL, IN, MI, MN, OH, WI); VI (AR, LA, NM, OK, TX); VII (IA, KS, MO, NE); VIII (CO, MT, ND, SD, UT, WY); IX (AZ, CA, HI, NV, Pacific Trust Territories); X (AK, ID, OR, WA).

and Retrieval System, Office of Air and Radiation), PCS (Permit Compliance System, Office of Water), RCRIS (Resource Conservation and Recovery Information System, Office of Solid Waste), NCDB (National Compliance Data Base, Office of Prevention, Pesticides, and Toxic Substances), CERCLIS (Comprehensive Environmental and Liability Information System, Superfund), and TRIS (Toxic Release Inventory System). IDEA also contains information from outside sources such as Dun and Bradstreet and the Occupational Safety and Health Administration (OSHA). Most data queries displayed in notebook sections IV and VII were conducted using IDEA.

Data Table Column Heading Definitions

Facilities in Search -- are based on the universe of TRI reporters within the listed SIC code range. For industries not covered under TRI reporting requirements, the notebook uses the FINDS universe for executing data queries. The SIC code range selected for each search is defined by each notebook's selected SIC code coverage described in Section II.

Facilities Inspected -- indicates the level of EPA and state agency facility inspections for the facilities in this data search. These values show what percentage of the facility universe is inspected in a 12 or 60 month period. This column does not count non-inspectional compliance activities such as the review of facility-reported discharge reports.

Number of Inspections -- measures the total number of inspections conducted in this sector. An inspection event is counted each time it is entered into a single media database.

Average Time Between Inspections -- provides an average length of time, expressed in months, that a compliance inspection occurs at a facility within the defined universe.

Facilities with One or More Enforcement Actions -- expresses the number of facilities that were party to at least one enforcement action within the defined time period. This category is broken down further into federal and state actions. Data are obtained for administrative, civil/judicial, and criminal enforcement actions. Administrative actions include Notices of Violation (NOVs). A facility with multiple enforcement actions is only counted once in this column (a facility with three enforcement actions counts as one). All percentages that appear are referenced to the number of facilities inspected.

Total Enforcement Actions -- describes the total number of enforcement actions identified for an industrial sector across all environmental statutes. A facility with multiple enforcement actions is counted multiple times (a facility with three enforcement actions counts as three).

State Lead Actions -- shows what percentage of the total enforcement actions are taken by state and local environmental agencies. Varying levels of use of EPA data systems by states may limit the volume of actions accorded state enforcement activity. Some states extensively report enforcement activities into EPA data systems, while other states may use their own data systems.

Federal Lead Actions -- shows what percentage of the total enforcement actions are taken by the United States Environmental Protection Agency. This value includes referrals from state agencies. Many of these actions result from coordinated or joint state/federal efforts.

Enforcement to Inspection Rate -- expresses how often enforcement actions result from inspections. This value is a ratio of enforcement actions to inspections, and is presented for comparative purposes only. This measure is a rough indicator of the relationship between inspections and enforcement. This measure simply indicates historically how many enforcement actions can be attributed to inspection activity. Reported inspections and enforcement actions under the Clean Water Act (CWA), the Clean Air Act (CAA) and the Resource Conservation and Recovery Act (RCRA) are included in this ratio. Inspections and actions from the TSCA/FIFRA/EPCRA database are not factored into this ratio because most of the actions taken under these programs are not the result of facility inspections. This ratio does not account for enforcement actions arising from non-inspection compliance monitoring activities (e.g., self-reported water discharges) that can result in enforcement action within the CAA, CWA, and RCRA.

Facilities with One or More Violations Identified -- indicates the number and percentage of inspected facilities having a violation identified in one of the following data categories: In Violation or Significant Violation Status (CAA); Reportable Noncompliance, Current Year Noncompliance, Significant Noncompliance (CWA); Noncompliance and Significant Noncompliance (FIFRA, TSCA, and EPCRA); Unresolved Violation and Unresolved High Priority Violation (RCRA). The values presented for this column reflect the extent of noncompliance within the measured time frame, but do not distinguish between the severity of the noncompliance. Percentages within this column can exceed 100 percent because facilities can be in violation status without being inspected. Violation status may be a precursor to an enforcement action, but does not necessarily indicate that an enforcement action will occur.

Media Breakdown of Enforcement Actions and Inspections -- four columns identify the proportion of total inspections and enforcement actions within EPA Air, Water, Waste, and TSCA/FIFRA/EPCRA databases. Each column is a percentage of either the "Total Inspections," or the "Total Actions" column.

VII.A. Organic Chemicals Compliance History

Exhibit 26 provides an overview of the reported compliance and enforcement data for the organic chemical industry over the past five years (August 1990 to August 1995). These data are also broken out by EPA Region thereby permitting geographical comparisons. A few points evident from the data are listed below.

- About 77 percent of the organic chemical producing facilities identified in the IDEA search were inspected in the past five years. These facilities were inspected on average every six months.

- Those facilities with one or more enforcement actions had, on average, over the five year period, almost five enforcement actions brought against them.

- The complexity of reactions and diversity among and within facilities makes it difficult to generalize about the types of compliance problems facilities will face.

Exhibit 26: Five-Year Enforcement and Compliance Summary for Organic Chemicals

A	B	C	D	E	F	G	H	I	J
Region	Facilities in Search	Facilities Inspected	Number of Inspections	Average Months Between Inspections	Facilities with 1 or More Enforcement Actions	Total Enforcement Actions	Percent State Lead Actions	Percent Federal Lead Actions	Enforcement to Inspection Rate
I	14	8	39	22	1	5	0%	100%	0.13
II	63	50	640	6	26	131	78%	22%	0.20
III	35	30	383	5	12	55	93%	7%	0.14
IV	81	57	867	6	23	107	81%	19%	0.12
V	79	59	599	8	20	55	65%	35%	0.09
VI	110	89	1,206	5	66	356	55%	45%	0.30
VII	15	11	80	11	0	0	0%	0%	--
VIII	2	2	6	20	1	4	100%	0%	0.67
IX	11	8	32	21	1	1	0%	100%	0.03
X	2	2	12	10	2	12	33%	67%	1.0
TOTAL	412	316	3,864	6	152	726	66%	34%	0.19

VII.B. Comparison of Enforcement Activity Between Selected Industries

Exhibits 27 and 28 allow the compliance history of the organic chemical industry to be compared with the other industries covered by the industry sector notebooks. Comparisons between Exhibits 27 and 28 permit the identification of trends in compliance and enforcement records of the industry by comparing data covering the last five years to that of the past year. Some points evident from the data are listed below.

- The organic chemical industry has a relatively high frequency of inspections compared to the other sectors shown. On average, organic chemical facilities were inspected every six months.

- Over the last five years, the organic chemical industry has had a relatively high ratio of enforcement actions to inspections. This relatively high ratio has continued in the past year.

- Of the sectors shown, the organic chemical industry has one of the highest percentage of EPA led enforcement actions versus state led actions.

Exhibits 29 and 30 provide a more in-depth comparison between the organic chemical industry and other sectors by breaking out the compliance and enforcement data by environmental statute. As in Exhibits 29 and 30, the data cover the last five years (Exhibit 27) and the previous year (Exhibit 28) to facilitate the identification of recent trends. A few points evident from the data are listed below.

- Over the past five years, RCRA has accounted for the largest share of inspections and enforcement actions at organic chemical facilities. This trend has increased over the past year.

- The share of enforcement actions and inspections has decreased in the past year for the Clean Water Act and FIFRA/TSCA/EPCRA/Other and has increased for the Clean Air Act and RCRA in comparison to the previous five years.

Exhibit 27: Five-Year Enforcement and Compliance Summary for Selected Industries

A	B	C	D	E	F	G	H	I	J
Industry Sector	**Facilities in Search**	**Facilities Inspected**	**Number of Inspections**	**Average Months Between Inspections**	**Facilities with 1 or More Enforcement Actions**	**Total Enforcement Actions**	**Percent State Lead Actions**	**Percent Federal Lead Actions**	**Enforcement to Inspection Rate**
Pulp and Paper	306	265	3,766	5	115	502	78%	22%	0.13
Printing	4,106	1,035	4,723	52	176	514	85%	15%	0.11
Inorganic Chemicals	548	298	3,034	11	99	402	76%	24%	0.13
Organic Chemicals	**412**	**316**	**3,864**	**6**	**152**	**726**	**66%**	**34%**	**0.19**
Petroleum Refining	156	145	3,257	3	110	797	66%	34%	0.25
Iron and Steel	374	275	3,555	6	115	499	72%	28%	0.14
Dry Cleaning	933	245	633	88	29	103	99%	1%	0.16
Metal Mining	873	339	1,519	34	67	155	47%	53%	0.10
Non-Metallic Mineral Mining	1,143	631	3,422	20	84	192	76%	24%	0.06
Lumber and Wood	464	301	1,891	15	78	232	79%	21%	0.12
Furniture	293	213	1,534	11	34	91	91%	9%	0.06
Rubber and Plastic	1,665	739	3,386	30	146	391	78%	22%	0.12
Stone, Clay, and Glass	468	268	2,475	11	73	301	70%	30%	0.12
Fabricated Metal	2,346	1,340	5,509	26	280	840	80%	20%	0.15
Nonferrous Metal	844	474	3,097	16	145	470	76%	24%	0.15
Electronics	405	222	777	31	68	212	79%	21%	0.27
Automobiles	598	390	2,216	16	81	240	80%	20%	0.11

Exhibit 28: One-Year Inspection and Enforcement Summary for Selected Industries

A	B	C	D	E		F		G	H
				Facilities with 1 or More Violations		Facilities with 1 or more Enforcement Actions			
Industry Sector	Facilities in Search	Facilities Inspected	Number of Inspections	Number	Percent*	Number	Percent*	Total Enforcement Actions	Enforcement to Inspection Rate
Pulp and Paper	306	189	576	162	86%	28	15%	88	0.15
Printing	4,106	397	676	251	63%	25	6%	72	0.11
Inorganic Chemicals	548	158	427	167	106%	19	12%	49	0.12
Organic Chemicals	**412**	**195**	**545**	**197**	**101%**	**39**	**20%**	**118**	**0.22**
Petroleum Refining	156	109	437	109	100%	39	36%	114	0.26
Iron and Steel	374	167	488	165	99%	20	12%	46	0.09
Dry Cleaning	933	80	111	21	26%	5	6%	11	0.10
Metal Mining	873	114	194	82	72%	16	14%	24	0.13
Non-metallic Mineral Mining	1,143	253	425	75	30%	28	11%	54	0.13
Lumber and Wood	464	142	268	109	77%	18	13%	42	0.58
Furniture	293	160	113	66	41%	3	2%	5	0.55
Rubber and Plastic	1,665	271	435	289	107%	19	7%	59	0.14
Stone, Clay, and Glass	468	146	330	116	79%	20	14%	66	0.20
Nonferrous Metals	844	202	402	282	140%	22	11%	72	0.18
Fabricated Metal	2,346	477	746	525	110%	46	10%	114	0.15
Electronics	405	60	87	80	133%	8	13%	21	0.24
Automobiles	598	169	284	162	96%	14	8%	28	0.10

* Percentages in Columns E and F are based on the number of facilities inspected (Column C). Percentages can exceed 100% because violations and actions can occur without a facility inspection.

Exhibit 29: Five-Year Inspection and Enforcement Summary by Statute for Selected Industries

Industry Sector	Facilities Inspected	Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		Resource Conservation and Recovery Act		FIFRA/TSCA/ EPCRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Pulp and Paper	265	3,766	502	51%	48%	38%	30%	9%	18%	2%	3%
Printing	1,035	4,723	514	49%	31%	6%	3%	43%	62%	2%	4%
Inorganic Chemicals	298	3,034	402	29%	26%	29%	17%	39%	53%	3%	4%
Organic Chemicals	**316**	**3,864**	**726**	**33%**	**30%**	**16%**	**21%**	**46%**	**44%**	**5%**	**5%**
Petroleum Refining	145	3,237	797	44%	32%	19%	12%	35%	52%	2%	5%
Iron and Steel	275	3,555	499	32%	20%	30%	18%	37%	58%	2%	5%
Dry Cleaning	245	633	103	15%	1%	3%	4%	83%	93%	0%	1%
Metal Mining	339	1,519	155	35%	17%	57%	60%	6%	14%	1%	9%
Non-metallic Mineral Mining	631	3,422	192	65%	46%	31%	24%	3%	27%	0%	4%
Lumber and Wood	301	1,891	232	31%	21%	8%	7%	59%	67%	2%	5%
Furniture	293	1,534	91	52%	27%	1%	1%	45%	64%	1%	8%
Rubber and Plastic	739	3,386	391	39%	15%	13%	7%	44%	68%	3%	10%
Stone, Clay, and Glass	268	2,475	301	45%	39%	15%	5%	39%	51%	2%	5%
Nonferrous Metals	474	3,097	470	36%	22%	22%	13%	38%	54%	4%	10%
Fabricated Metal	1,340	5,509	840	25%	11%	15%	6%	56%	76%	4%	7%
Electronics	222	777	212	16%	2%	14%	3%	66%	90%	3%	5%
Automobiles	390	2,216	240	35%	15%	9%	4%	54%	75%	2%	6%

Exhibit 30: One-Year Inspection and Enforcement Summary by Statute for Selected Industries

Industry Sector	Facilities Inspected	Total Inspections	Total Enforcement Actions	Clean Air Act		Clean Water Act		Resource Conservation and Recovery Act		FIFRA/TSCA/ EPCRA/Other	
				% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions	% of Total Inspections	% of Total Actions
Pulp and Paper	189	576	88	56%	69%	35%	21%	10%	7%	0%	3%
Printing	397	676	72	50%	27%	5%	3%	44%	66%	0%	4%
Inorganic Chemicals	158	427	49	26%	38%	29%	21%	45%	36%	0%	6%
Organic Chemicals	**195**	**545**	**118**	**36%**	**34%**	**13%**	**16%**	**50%**	**49%**	**1%**	**1%**
Petroleum Refining	109	437	114	50%	31%	19%	16%	30%	47%	1%	6%
Iron and Steel	167	488	46	29%	18%	35%	26%	36%	50%	0%	6%
Dry Cleaning	80	111	11	21%	4%	1%	22%	78%	67%	0%	7%
Metal Mining	114	194	24	47%	42%	43%	34%	10%	6%	0%	19%
Non-metallic Mineral Mining	253	425	54	69%	58%	26%	16%	5%	16%	0%	11%
Lumber and Wood	142	268	42	29%	20%	8%	13%	63%	61%	0%	6%
Furniture	293	160	5	58%	67%	1%	10%	41%	10%	0%	13%
Rubber and Plastic	271	435	59	39%	14%	14%	4%	46%	71%	1%	11%
Stone, Clay, and Glass	146	330	66	45%	52%	18%	8%	38%	37%	0%	3%
Nonferrous Metals	202	402	72	33%	24%	21%	3%	44%	69%	1%	4%
Fabricated Metal	477	746	114	25%	14%	14%	8%	61%	77%	0%	2%
Electronics	60	87	21	17%	2%	14%	7%	69%	87%	0%	4%
Automobiles	169	284	28	34%	16%	10%	9%	56%	69%	1%	6%

VII.C. Review of Major Legal Actions

This section provides summary information about major cases that have affected this sector, and a list of Supplementary Environmental Projects (SEPs). SEPs are compliance agreements that reduce a facility's stipulated penalty in return for an environmental project that exceeds the value of the reduction. Often, these projects fund pollution prevention activities that can significantly reduce the future pollutant loadings of a facility.

VII.C.1. Review of major cases

Historically, OECA's Office of Enforcement Capacity and Outreach does not regularly compile information related to major cases and pending litigation within an industry sector. The staff are willing to pass along such information to Agency staff as requests are made. In addition, summaries of completed enforcement actions are published each fiscal year in the Enforcement Accomplishments Report. To date, these summaries are not organized by industry sector. (Contact: Office of Enforcement Capacity and Outreach, 202-260-4140)

VII.C.2. Supplementary Environmental Projects (SEPs)

Supplemental environmental projects (SEPs) are negotiated environmental projects such that a fraction of the costs may be applied to their fine. Regional summaries of SEPs actions undertaken in the 1993 and 1994 federal fiscal year were reviewed. Seventeen projects were undertaken that involved organic chemical manufacturing facilities, as shown in the following table. CERCLA violations engendered approximately half of all projects. Other actions were associated with EPCRA, CAA, RCRA and TSCA violations; the specifics of the original violations are not known.

The majority of SEPs were done in Region VI. Taken alone, Texas accounted for approximately one-third of all projects (6 of 17). The fact that only one fifth of all organic chemical manufactures are located in Region VI; may suggest that negotiating SEPs is a regional priority.

One project was conducted at a facility that manufactured both inorganic and organic chemicals. This project has been included in both industry sector project summaries. Unlike other sectors, none of the organic chemical manufacturing SEPs undertaken in FY-1993 and FY-1994 involved specific manufacturing process changes. The SEPs fall into two categories:

- Non-process related projects: Eleven of the seventeen SEPs involved projects not directly related to the organic chemical manufacturing process or its outputs. Ten of these projects involved a contribution to the Local Emergency Planning Committee (LEPC). Contributions ranged from donation of

equipment (e.g., computer systems and emergency materials) to training programs for LEPC members. One project involved the replacement of QA/QC lab equipment with less solvent-requiring alternatives. The other project involved removing and properly disposing of 26 PCB capacitors. Cost to company ranged from $3,000 to $257,000 for these projects.

- Control and recovery technology improvement/installation: In four of the projects, control or recovery technologies were installed or upgraded to reduce toxic chemical production from manufacturing processes. Cost for project implementation ranged from $125,000 to $200,000.

Exhibit 31: FY-1993 and 1994 Supplemental Environmental Projects Overview: Organic Chemical Manufacture

General SEP Information				Violation Information				Pollutant Reduction		Supplemental Environmental Project Description
FY	Docket #	Company Name	State/ Region	Type	Initial Penalty	Final Penalty	SEP Credit	SEP Cost to Company	Pollutant of Concern	Pollutant Reduction	
93	---	High Plains Corp.	KS	EPCRA	---	$47,000	---	$125,000	---	---	Waste management equipment purchased, future computerized record keeping installed, and computer donated to LEPC
93*	---	LaRoche Chemicals, Inc.	LA	CAA	$88,360	$25,000	---	$158,400	CFC/HCFC	---	Company purchased, installed, and operated equipment for recovery of residual CFCs and HCFCs in used gas cylinders returned by customers
93	6-93-004	E.I. Dupont	LA	CERCLA 103(a)	$25,000	$2,000	---	$11,000	---	---	Donated emergency and/or computer equipment to LEPC for response/planning for chemical emergencies
93	6-93-002	Union Carbide	LA	CERCLA 103(a)	$16,500	$7,000	---	$3,000	---	---	Donated emergency and/or computer equipment to LEPC for response/planning for chemical emergencies
93	I-92-1083	Monsanto Chemical Company	MA	RCRA 3008(a)	$488,200	$107,000	$80,250	$160,500	Methanol	1.8 million lbs/yr	Will add methanol recovery systems to current process, which will result in an approx. reduction of 1.8 million pounds/yr. Previously, waste was burned in boiler
93	---	Markwest Hydrocarbon Partners	Reg. 4	EPCRA 311, 312	$28,000	$5,600	---	$22,400	---	---	Enhanced data management and emergency response capabilities of county LEPC
93	---	Chemical Systems Division, United Technologies Corp.	Reg. 9	RCRA	---	---	$160,000	$257,000	Toluene, chloroform, methanol, tetrahydrofuran, pyridine, formaldehyde, and heptane	950 liters	Replaced four pieces of QA/QC lab equipment with less solvent-requiring alternatives
93	6-92-008	Hoecst Celanese	TX	CERCLA 103(a)	$8,250	$0	---	$10,000	---	---	Conducted an outreach for four counties surrounding facility, mailed out information packets to 1,200 targeted facilities, and sponsored compliance workshop
93	6-93-011	OxyChem	TX	CERCLA 103(a)	$25,000	$12,000	---	$9,000	---	---	Donated emergency and/or computer equipment to LEPC for response/planning for chemical emergencies

Exhibit 31 (cont.): FY-1993 and 1994 Supplemental Environmental Projects Overview: Organic Chemical Manufacture

General SEP Information				Violation Information				Pollutant Reduction		Supplemental Environmental Project Description
FY	Docket #	Company Name	State/ Region	Type	Initial Penalty	Final Penalty	SEP Credit	SEP Cost to Company	Pollutant of Concern	Pollutant Reduction	
93	6-93-003	E.I. Dupont	TX	CERCLA 103(a)	$25,000	$2,000	---	$14,000	---	---	Donated emergency and/or computer equipment to LEPC for response/planning for chemical emergencies
93	6-93-020	Arco Chemical	TX	CERCLA 103(a)	$8,250	$2,000	---	$7,000	---	---	Donated emergency and/or computer equipment to LEPC for response/planning for chemical emergencies
93	6-92-026	Elf Atochem	TX	EPCRA 312(a)	$8,250	$1,500	---	$5,500	---	---	Donated emergency and/or computer equipment to LEPC for response/planning for chemical emergencies, will participate in LEPC activities, and technical assistance
93	6-93-005	Rohm & Haas	TX	CERCLA 103(a)	$16,500	$10,000	---	$3,000	---	---	Donated emergency and/or computer equipment to LEPC for response/planning for chemical emergencies
94	---	Eastman Kodak	NY	RCRA	$8,000,000	---	---	$12,000,000	---	---	---
94	---	Eastman Kodak	NY	TSCA	---	$42,000	$17,000	$3,600,000	---	---	---
94	---	Hatco Corp.	Reg. II	TSCA	---	$96,300	---	$647,000	TCA	---	Installed a purification system to replace TCA. Minimized waste generation by recovering and using unreacted raw materials
94	---	Allied Signal, Inc.	IN	TSCA	$7,000	$2,500	---	$7,000	---	---	Removed and properly disposed of 26 PCB capacitors

*Facilities identified as combined inorganic and organic chemical manufacturers

Violation Information Terms
Initial penalty: Initial proposed cash penalty for violation
Final penalty: Total penalty after SEP negotiation
SEP credit: Cash credit given for SEP so that, Final penalty - SEP credit = Final cash penalty
SEP cost to company: Actual cost to company of SEP implementation

NOTE: Due to differences in terminology and level of detail between regional SEP information, in some cases the figure listed as Final penalty may be the Final cash penalty after deduction for SEP credit

VIII. COMPLIANCE ACTIVITIES AND INITIATIVES

This section highlights the activities undertaken by this industry sector and public agencies to voluntarily improve the sector's environmental performance. These activities include those independently initiated by industrial trade associations. In this section, the notebook also contains a listing and description of national and regional trade associations.

VIII.A. Sector-related Environmental Programs and Activities

Chemical Manufacturer's Association and EPA are discussing developing plant level compliance guides, auditing protocols, and training materials for new regulations.

VIII.B. EPA Voluntary Programs

33/50 Program

The "33/50 Program" is EPA's voluntary program to reduce toxic chemical releases and transfers of seventeen chemicals from manufacturing facilities. Participating companies pledge to reduce their toxic chemical releases and transfers by 33 percent as of 1992 and by 50 percent as of 1995 from the 1988 baseline year. Certificates of Appreciation have been given out to participants meeting their 1992 goals. The list of chemicals includes seventeen high-use chemicals reported in the Toxics Release Inventory. Exhibit 32 lists those companies participating in the 33/50 program that reported the SIC code 286 to TRI. Many of the companies shown listed multiple SIC codes and, therefore, are likely to carry out operations in addition to organic chemical manufacturing. The SIC codes reported by each company are listed in no particular order. In addition, the number of facilities within each company that are participating in the 33/50 program and that report SIC 286 to TRI is shown. Finally, each company's total 1993 releases and transfers of 33/50 chemicals and the percent reduction in these chemicals since 1988 are presented.

The organic chemicals industry as a whole used, generated or processed all seventeen target TRI chemicals. Of the target chemicals, benzene, toluene, xylenes and methyl isobutyl ketone are released most frequently and in similar quantities. Significant amounts of methyl ethyl ketone are also released, although it is only the seventh most frequently reported 33/50 chemical. These five toxic chemicals account for about eight percent of TRI releases and transfers from organic chemicals facilities. From Exhibit 32, 115 companies representing 335 facilities listed under SIC 286 are currently participating in the 33/50 program. They account for 34 percent of the 986 facilities carrying out organic chemicals manufacturing operations (as identified by the 1992 Census of Manufacturers), which is significantly higher than the average for all

industries of 14 percent participation. (Contact: Mike Burns, 202-260-6394 or the 33/50 Program 202-260-6907)

Exhibit 32: 33/50 Program Participants Reporting SIC 286 (Organic Chemicals)

Parent Company	City, State	SIC Codes Reported	Number of Participating Facilities	1993 Releases and Transfers (lbs)	% Reduction 1988 to 1993
A. W. Chesterton Company	Stoneham, MA	2869, 3053, 3561	1	13,250	65
Air Products And Chemicals	Allentown, PA	2873, 2869	6	144,876	50
Akzo Nobel Inc.	Chicago, IL	2819, 2869	5	930,189	13
Albemarle Corporation	Richmond, VA	2869	3	1,005,108	51
Allied-Signal Inc.	Morristown, NJ	2819, 2869	10	2,080,501	50
American Home Products Corp.	New York, NY	2833, 2869	3	1,210,834	50
American Petrofina Holding Co.	Dallas, TX	2865	1	747,799	40
Amoco Corporation	Chicago, IL	2865	10	4,632,163	50
Aristech Chemical Corporation	Pittsburgh, PA	2865	4	196,400	18
Arrow Eng. Inc.	Dalton, GA	2843, 2865, 2869	1	250	50
Ashland Oil Inc.	Russell, KY	2865	3	723,562	50
Atlantic Richfield Company	Los Angeles, CA	2865, 2869	3	2,435,248	2
B F Goodrich Company	Akron, OH	2869	4	621,207	50
BASF Corporation	Parsippany, NJ	2869, 2865, 2819	6	1,157,548	50
Baxter International Inc.	Deerfield, IL	2869	1	42,570	80
Borden Chem. & Plas. Ltd. Partner	Columbus, OH	2813, 2821, 2869	1	12,662	***
Borden Inc.	New York, NY	2869, 2821	1	1,644,614	*
BP America Inc.	Cleveland, OH	2869	2	1,597,404	24
Buffalo Color Corporation	Parsippany, NJ	2865	1	10,705	8
CPH Holding Corporation	Chicago, IL	2869	1	7,003	50
Capital Resin Corporation	Columbus, OH	2869, 2821	1	62,850	50
Chemdesign Corporation	Fitchburg, MA	2869	2	47,435	*
Chemical Solvents Inc.	Cleveland, OH	2869	2	955,751	***
Chevron Corporation	San Francisco, CA	2865	4	2,794,502	50
Ciba-Geigy Corporation	Ardsley, NY	2879, 2821, 2865	4	1,875,028	50
Citgo Petroleum Corporation	Tulsa, OK	2911, 2819, 2869	1	1,164,354	20
Coopers Creek Chemical	West Conshohocken, PA	2865	1	19,690	20

Exhibit 32: 33/50 Program Participants Reporting SIC 286 (Organic Chemicals)

Parent Company	City, State	SIC Codes Reported	Number of Participating Facilities	1993 Releases and Transfers (lbs)	% Reduction 1988 to 1993
Crompton & Knowles Corporation	Stamford, CT	2865	5	30,239	50
Cytec Industries	West Paterson, NJ	2819, 2869	2	1,074,646	50
Degussa Corporation	Ridgefield Park, NJ	2819, 2869, 2879	1	676,418	***
Dow Chemical Company	Midland, MI	2800, 2819, 2821	5	2,769,363	50
Dow Corning Corporation	Midland, MI	2869, 2822, 2821	2	1,134,610	16
DSM Finance USA Inc.	Wilmington, DE	2869, 2873	1	964,346	32
E. I. Du Pont De Nemours & Co.	Wilmington, DE	2865, 2824, 2821	16	11,740,853	50
Eastman Kodak Company	Rochester, NY	2869, 2865	4	5,827,091	50
Elf Aquitaine Inc.	New York, NY	2869, 2821, 2819	4	273,274	43
EM Industries Incorporated	Hawthorne, NY	5169, 2869, 2899	1	9,055	15
Engelhard Corporation	Iselin, NJ	2816, 2865, 2819	1	236,302	50
Ethyl Corporation	Richmond, VA	2869	2	251,519	46
Exxon Corporation	Irving, TX	2869	6	2,469,930	50
Ferro Corporation	Cleveland, OH	2819, 2869	3	165,529	50
First Mississippi Corporation	Jackson, MS	2865	2	200,977	***
FMC Corporation	Chicago, IL	2879, 2869, 2819	2	502,318	50
Gaf Corporation	Wayne, NJ	2869, 2865, 2834	3	944,730	44
Gencorp Inc.	Akron, OH	3764, 2892, 3761	1	5,453,359	34
General Electric Company	Fairfield, CT	2821, 2812, 2869	3	5,010,856	50
Georgia Gulf Corporation	Atlanta, GA	2865, 2812, 2819	2	39,480	80
Georgia-Pacific Corporation	Atlanta, GA	2611, 2631, 2861	1	2,722,182	50
Goodyear Tire & Rubber Co.	Akron, OH	2865, 2869	3	3,932,157	50
Henkel Corporation	King Of Prussia, PA	2869	4	164,363	55
Hercules Incorporated	Wilmington, DE	2861, 2821, 2869	2	5,014,664	50
HM Anglo-American Ltd.	New York, NY	2869	1	1,265,741	2
Hoechst Celanese Corporation	Somerville, NJ	2869, 2821	12	2,603,661	50
Hoffman-La Roche	Nutley, NJ	2869, 2879, 2844	1	902,929	62
ICI Americas	Wilmington, DE	2869, 3089	3	165,162	50
International Paper Company	Purchase, NY	2861	2	2,784,831	50
James River Corp Virginia	Richmond, VA	2621, 2611, 2869	1	961,588	53
Johnson & Johnson	New Brunswick, NJ	2833, 2869	1	317,843	65
Kalama Chemical	Seattle, WA	2865, 2869	1	214,665	37

Exhibit 32: 33/50 Program Participants Reporting SIC 286 (Organic Chemicals)

Parent Company	City, State	SIC Codes Reported	Number of Participating Facilities	1993 Releases and Transfers (lbs)	% Reduction 1988 to 1993
Laidlaw Environmental Services	Columbia, SC	2819, 2869	1	8,167	***
Laroche Holdings Inc.	Atlanta, GA	2812, 2869	1	81,470	*
Lubrizol Corp.	Wickliffe, OH	2869	4	466,871	50
Lyondell Petrochemical Co.	Houston, TX	2869, 2821	1	285,430	57
Mallinckrodt Group Inc.	Saint Louis, MO	2869, 2873	5	775,206	50
Merck & Co. Inc.	Rahway, NJ	2833, 2869, 2879	1	1,456,238	50
Miles Inc.	Pittsburgh, PA	2865	7	1,095,504	40
Milliken & Company	Spartanburg, SC	2869, 2843, 2865	1	13,500	50
Millipore Corporation	Bedford, MA	2869	1	65,529	50
Mobil Corporation	Fairfax, VA	2911, 2869	5	4,263,284	50
Monsanto Company	Saint Louis, MO	2824, 2869, 2821	11	1,683,580	23
Moore Business Forms (Del)	Lake Forest, IL	2761, 2865, 2821	1	107,091	42
Morgan Stanley Leveraged Fund	New York, NY	2869	1	2,166,420	13
Morton International Inc.	Chicago, IL	2821, 2891, 2879	4	721,216	20
Nalco Chemical Company	Naperville, IL	2869, 2899, 2819	4	107,651	50
Nashua Corp.	Nashua, NH	2672, 3572, 3577	1	1,818,504	**
Occidental Petroleum Corp.	Los Angeles, CA	2869	10	8,896,126	19
Olin Corporation	Stamford, CT	2869, 2841, 2843	3	574,673	70
PCR Group Inc.	Jacksonville, FL	2869	1	26,510	3
PCL Group Inc.	Cincinnati, OH	2865, 2873, 2879	1	471,405	***
Perkin-Elmer Corporation	Norwalk, CT	3826, 2869	1	25,865	*
Philip Morris Companies Inc.	New York, NY	2022, 2869	1	259,053	**
Phillips Petroleum Company	Bartlesville, OK	2869, 2821	4	2,367,877	50
PPG Industries Inc.	Pittsburgh, PA	2812, 2816, 2869	3	2,772,331	50
Procter & Gamble Company	Cincinnati, OH	2869	3	612,520	*
Quantum Chemical Corporation	Iselin, NJ	2821, 2869	5	289,235	50
Rexene Corporation	Dallas, TX	2821, 2869	1	128,054	50
Rhone-Poulenc Inc.	Monmouth Junction, NJ	2879, 2869	5	1,437,778	50
Rohm and Haas Company	Philadelphia, PA	2869	5	1,210,244	50
Rubicon Inc.	Geismar, LA	2865, 2869, 2873	1	134,306	75
Sandoz Corporation	New York, NY	2865	1	104,490	50
Sartomer Company Inc.	Exton, PA	2821, 2869, 2899	1	41,893	*
Schenectady Chemical Inc.	Schenectady, NY	2821, 2869	1	239,285	***

Exhibit 32: 33/50 Program Participants Reporting SIC 286 (Organic Chemicals)

Parent Company	City, State	SIC Codes Reported	Number of Participating Facilities	1993 Releases and Transfers (lbs)	% Reduction 1988 to 1993
Shell Petroleum Inc.	Houston, TX	2869	4	3,240,716	55
Shepherd Chemical Co.	Cincinnati, OH	2819, 2869	1	828	72
Standard Chlorine Chemical Co.	Kearny, NJ	2865, 2819	1	48,246	***
Stepan Company	Northfield, IL	2843, 2865, 2869	1	25,186	***
Sterling Chemicals Inc.	Houston, TX	2869, 2865, 2819	1	182,216	65
Syntex Usa Inc.	Palo Alto, CA	2833, 2048, 2869	2	499,873	33
Texaco Inc.	White Plains, NY	2869	4	514,803	50
Texas Olefins Company	Houston, TX	2869	1	214	33
Unilever United States Inc.	New York, NY	2821, 2891, 2869	3	164,034	50
Union Camp Corporation	Wayne, NJ	2869	4	835,696	50
Union Carbide Corporation	Danbury, CT	2821, 2869	7	728,129	50
Uniroyal Chemical Corporation	Middlebury, CT	2822, 2869, 2879	2	1,970,357	20
United Organics Corp.	Williamston, NC	2869	1	14,127	*
UOP	Des Plaines, IL	2819, 2869	2	14,169	50
Veba Corporation	Houston, TX	2869, 2992	3	24,254	10
Velsicol Chemical Corporation	Rosemont, IL	2865, 2819, 2869	2	224,664	50
Vista Chemical Company	Houston, TX	2821, 2869	3	106,497	50
Vulcan Materials Company	Birmingham, AL	2869, 2812	2	679,566	85
Wacker Chemical Corporation	Williamsburg, VA	2821, 2891, 2869	1	772	*
Walter Industries Inc.	Tampa, FL	2869	1	859,751	***
Westvaco Corporation	New York, NY	2861	2	877,866	50
Witco Corporation	New York, NY	2869, 2899, 2841	6	327,611	50
Zeneca Holdings Inc.	Wilmington, DE	2869, 2843, 2899	5	1,609,047	*

* = not quantifiable against 1988 data.
** = use reduction goal only.
*** = no numerical goal.

Source: U.S. EPA, Toxics Release Inventory, 1993.

Environmental Leadership Program

The Environmental Leadership Program (ELP) is a national initiative piloted by EPA and state agencies in which facilities have volunteered to demonstrate innovative approaches to environmental management and compliance. EPA has selected 12 pilot projects at industrial facilities and federal installations which will demonstrate the principles of the ELP program. These principles include: environmental management systems, multimedia compliance assurance, third-party verification of compliance, public measures of accountability, community involvement, and mentor programs. In return for participating, pilot participants receive public recognition and are given a period of time to correct any violations discovered during these experimental projects.

Forty proposals were received from companies, trade associations, and federal facilities representing many manufacturing and service sectors. One chemical company's proposal was accepted (Ciba Geigy of St. Gabriel, LA). Another chemical firm (Akzo Chemicals of Edison, NJ), one pharmaceutical manufacturer (Schering Plough of Kenilworth, NJ) and one manufacturer of agricultural chemicals (Gowan Milling of Yuma, AZ) have submitted proposals. (Contact: Tia-Ming Chang, ELP Director 202-564-5081 or Robert Fentress 202-564-7023)

Project XL

Project XL was initiated in March 1995 as a part of President Clinton's *Reinventing Environmental Regulation* initiative. The projects seek to achieve cost effective environmental benefits by allowing participants to replace or modify existing regulatory requirements on the condition that they produce greater environmental benefits. EPA and program participants will negotiate and sign a Final Project Agreement, detailing specifc objectives that the regulated entity shall satisfy. In exchange, EPA will allow the participant a certain degree of regulatory flexibility and may seek changes in underlying regulations or statutes. Participants are encouraged to seek stakeholder support from local governments, businesses, and environmental groups. EPA hopes to implement fifty pilot projects in four categories including facilities, sectors, communities, and government agencies regulated by EPA. Applications will be accepted on a rolling basis and projects will move to implementation within six months of their selection. For additional information regarding XL Projects, including application procedures and criteria, see the May 23, 1995 Federal Register Notice. (Contact: Jon Kessler at EPA's Office of Policy Analysis 202 260-4034)

Green Lights Program

EPA's Green Lights program was initiated in 1991 and has the goal of preventing pollution by encouraging U.S. institutions to use energy-

efficient lighting technologies. The program has over 1,500 participants which include major corporations; small and medium sized businesses; federal, state, and local governments; non-profit groups; schools; universities; and health care facilities. Each participant is required to survey their facilities and upgrade lighting wherever it is profitable. EPA provides technical assistance to the participants through a decision support software package, workshops and manuals, and a financing registry. EPA's Office of Air and Radiation is responsible for operating the Green Lights Program. (Contact: Maria Tikoff at 202-233-9178 or the Green Light/Energy Star Hotline at 202-775-6650)

WasteWi$e Program

The WasteWi$e Program was started in 1994 by EPA's Office of Solid Waste and Emergency Response. The program is aimed at reducing municipal solid wastes by promoting waste minimization, recycling collection, and the manufacturing and purchase of recycled products. As of 1994, the program had about 300 companies as members, including a number of major corporations. Members agree to identify and implement actions to reduce their solid wastes and must provide EPA with their waste reduction goals along with yearly progress reports. EPA, in turn, provides technical assistance to member companies and allows the use of the WasteWi$e logo for promotional purposes. (Contact: Lynda Wynn 202-260-0700 or the WasteWi$e Hotline at 800-372-9473)

Climate Wise Recognition Program

The Climate Change Action Plan was initiated in response to the U.S. commitment to reduce greenhouse gas emissions in accordance with the Climate Change Convention of the 1990 Earth Summit. As part of the Climate Change Action Plan, the Climate Wise Recognition Program is a partnership initiative run jointly by EPA and the Department of Energy. The program is designed to reduce greenhouse gas emissions by encouraging reductions across all sectors of the economy, encouraging participation in the full range of Climate Change Action Plan initiatives, and fostering innovation. Participants in the program are required to identify and commit to actions that reduce greenhouse gas emissions. The program, in turn, gives organizations early recognition for their reduction commitments; provides technical assistance through consulting services, workshops, and guides; and provides access to the program's centralized information system. At EPA, the program is operated by the Air and Energy Policy Division within the Office of Policy Planning and Evaluation. (Contact: Pamela Herman 202-260-4407)

NICE^3

The U.S. Department of Energy and EPA's Office of Pollution Prevention are jointly administering a grant program called The National Industrial

Competitiveness through Energy, Environment, and Economics (NICE^3). By providing grants of up to 50 percent of the total project cost, the program encourages industry to reduce industrial waste at its source and become more energy-efficient and cost-competitive through waste minimization efforts. Grants are used by industry to design, test, demonstrate, and assess the feasibility of new processes and/or equipment with the potential to reduce pollution and increase energy efficiency. The program is open to all industries; however, priority is given to proposals from participants in the pulp and paper, chemicals, primary metals, and petroleum and coal products sectors. (Contact: DOE's Golden Field Office 303-275-4729)

VIII.C. Trade Association/Industry Sponsored Activity

VIII.C.1. Environmental Programs

The Global Environmental Management Initiative (GEMI) is made up of group of leading companies dedicated to fostering environmental excellence by business. GEMI promotes a worldwide business ethic for environmental management and sustainable development, to improve the environmental performance of business through example and leadership. In 1994, GEMI's membership consisted of about 30 major corporations including Union Carbide Corporation and Dow Chemical.

Center for Waste Reduction Technologies under the aegis of the American Institute of Chemical Engineers sponsored research on innovative technologies to reduce waste in the chemical processing industries. The primary mechanism is through funding of academic research.

The National Science Foundation and the Environmental Protection Agency's Office of Pollution Prevention and Toxics signed an agreement in January of 1994 to coordinate the two agencies' programs of **basic research related to pollution prevention**. The collaboration will stress research in the use of less toxic chemical and synthetic feedstocks, use of photochemical processes instead of traditional ones that employ toxic reagents, use of recyclable catalysts to reduce metal contamination, and use of natural feedstocks when synthesizing chemicals in large quantities.

The **Chemical Manufacturer's Association** funds research on issues of interest to their members particularly in support of their positions on proposed or possible legislation. They recently funded a study to characterize the environmental fate of organochlorine compounds.

ISO 9000 is a series of international total quality management guidelines. After a successful independent audit of their management plans, firms are qualified to be ISO 9000 registered. In June of 1993, the International

Standards Organization created a technical committee to work on new standards for environmental management systems.

The **Responsible Care® Initiative** of the Chemical Manufacturer's Association requires all members and partners to continuously improve their health, safety, and environmental performance in a manner that is responsive to the public. Launched in 1988, the Responsible Care® concepts are now being applied in 36 countries around the world. Responsible Care® is a comprehensive, performance-oriented initiative composed of ten progressive Guiding Principles and six board Codes of Management Practices. These Management Practices cover all aspects of the chemical industry's operations, from research to manufacturing, distribution, transportation, sales and marketing, and to downstream users of chemical products. Through Responsible Care®, CMA members and partners gain insight from the public through, among other means, a national Public Advisory Panel and over 250 local Community Advisory Panels. This, coupled with the fact that participation in Responsible Care® is an obligation of membership with the Chemical Manufacturer's Association, make this performance improvement initiative unique. The Synthetic Organic Chemical Manufacturer's Association whose membership consists of smaller batch and custom chemical manufacturers with typically fewer than 50 employees and less than $50 million in annual sales, encourages its members to achieve continuous performance improvement in their health, safety, and environmental programs through implementation of the chemical industry's Responsible Care® initiative. SOCMA is a partner in Responsible Care®.

VIII.C.2. Summary of Trade Associations

American Chemical Society
1155 16th Street, NW
Washington, D.C. 20036
Phone: (202) 872-8724
Fax: (202) 872-6206

Budget: $192,000,000
Staff: 1700
Members: 145,000

The American Chemical Society (ACS) has an educational and research focus. The ACS produces approximately thirty different industry periodicals and research journals, including *Environmental Science and Technology* and *Chemical Research in Toxicology*. In addition to publishing, the ACS presently conducts studies and surveys; legislation monitoring, analysis, and reporting; and operates a variety of educational programs. The ACS library and on-line information services are extensive. Some available on-line services are *Chemical Journals Online*, containing the full text of 18 ACS journals, 10 Royal Society of Chemistry journals, five polymer journals and the Chemical Abstracts Service, *CAS*, which provides a variety of information on chemical compounds. Founded in 1876, the ACS is presently comprised of 184 local groups and 843 student groups nationwide.

Chemical Manufacturer's Association
2501 M St., NW
Washington, D.C. 20037
Phone: (202) 887-1100
Fax: (202) 887-1237

Members: 185
Staff: 246
Budget: $36,000,000

A principal focus of the Chemical Manufacturer's Association (CMA) is on regulatory issues facing chemical manufacturers at the local, state, and federal levels. At its inception in 1872, the focus of CMA was on serving chemical manufacturers through research. Research is still ongoing at CMA. Member committees, task groups, and work groups routinely sponsor research and technical data collection that is then provided to the public in support of CMA's advocacy. Much additional research takes place through the CHEMSTAR® program. CHEMSTAR® consists of a variety of self-funded panels working on single-chemical research agendas. This research fits within the overall regulatory focus of CMA; CHEMSTAR® study results are provided to both CMA membership and regulatory agencies. Other initiatives include the Responsible Care® program, which includes six codes of management practices designed to go beyond simple regulatory compliance. CAM is currently developing measurement and appropriate verification systems for these codes. CMA also conducts workshops and technical symposia, promotes in-plant safety, operates a chemical emergency center (CHEMTREC®) which offers guidance in chemical emergency situations, and operates the Chemical

Referral Center which provides chemical health and safety information to the public. Publications include the annual *U.S. Chemical Industry Statistical Handbook*, containing detailed data on the industry; *Responsible Care in Action*, the 1993-94 progress report on implementing Responsible Care®; and *Preventing Pollution: A Chemical Industry Progress Report (1988-1992)*, summarizing waste generation and reduction data for the years 1988-92. CMA holds an annual meeting for its membership in White Sulphur Springs, WV.

Ethylene Oxide Industry Council
2501 M St. NW, Ste. 330
Washington, DC 20037
Phone: (202) 887-1198

The Ethylene Oxide Industry Council (EOIC), founded in 1981, is an example of a panel group within the CHEMSTAR® program of the Chemical Manufacturer's Association (CMA). The EOIC consists of ethylene oxide producers and users. Ethylene oxide is used in the manufacture of antifreeze and polyester fibers, and is widely used as a sterilizing agent. The EOIC develops scientific, technological, and economic data on the safe use and manufacture of ethylene oxide. Other duties include informing scientific and governmental organizations of the industry's views and interests.

Synthetic Organic Chemicals
Manufacturer's Association
1100 New York Avenue, NW
Washington, D.C. 20005
Phone: (202) 414-4100 Members: 250
Fax: (202) 289-8584 Staff: 50

Synthetic Organic Chemicals Manufacturer's Association (SOCMA) is the national trade association representing the legislative, regulatory, and commercial interests of some 250 companies that manufacture, distribute, or market organic chemicals. Most of SOCMA's members are batch and custom chemical manufacturers who are the highly innovative, entrepreneurial and customer-driven sector of the U.S. chemical industry. The majority of SOCMA's members are small businesses with annual sales of less than $50 million and fewer than 50 employees. SOCMA assists its members in improving their environmental, safety, and health performance through various programs focusing on continuous improvement. A bi-monthly newsletter provides information on legislative and regulatory developments, as well as on education and training opportunities. SOCMA holds an annual meeting in May and also sponsors INFORMEX, the largest custom chemical trade show in the U.S. In addition, SOCMA's

Association Management Center includes two dozen self-funded groups that focus on single chemical issues.

Chemical Specialties Manufacturer's Association
1913 I St. NW
Washington, D.C. 20006
Phone: (202) 872-8110 Members: 425
Fax: (202) 872-8114 Staff: 31

This organization represents the manufacturers of such specialty chemical products as pesticides, cleaners, disinfectants, sanitizers, and polishes. The Chemical Specialties Manufacturer's Association (CSMA) was founded in 1914. Today, the CSMA works with federal and state agencies and public representatives, to provide their membership with information on governmental activities and scientific developments. Some committees include: Government Affairs Advisory and Scientific Affairs. Publications include the quarterly *Chemical Times & Trends*, the biweekly *Legislative Reporter*, and compilations of laws and regulations. CSMA holds an annual December meeting in Washington, D.C.

Halogenated Solvents Industry Alliance
1225 19th St. NW, Ste. 300 Members: 200
Washington, D.C. 20036 Budget: $1,400,000
Phone: (202) 223-5890

The goal of the Halogenated Solvents Industry Alliance (HSIA) is to develop programs to address problems involving halogenated solvents. The group is actively involved in legislative and regulatory issues affecting the industry, providing industry comments and information to agencies, and representing the industry at administrative hearings. The HSIA also sponsors working groups on issues specific to the solvent industry. Publications include the bimonthly newsletter *Halogenated Solvents Industry Alliance*, which includes a listing of publications available from the group and the monthly newsletter *Solvents Update*, which covers regulatory development and HSIA actions.

Methyl Chloride Industry Association
c/o Robert Sussman
Latham and Watkins
1001 Pennsylvania Ave. NW, Ste. 1300
Washington, D.C. 20004
Phone: (202) 637-2200

The Methyl Chloride Industry Association (MCIA) was founded in 1981 to meet the needs of the methyl chloride manufacturing industry on the issue of government regulation. The group participates in EPA rulemakings as an industry representative. The MCIA has no publications or annual meetings.

American Institute of Chemical Engineers

1707 L Street, NW, Ste. 333
Washington, D.C. 20036 Members: 54,000
Phone: (202) 962-8690 Staff: 103
Fax: (202) 833-3014

The American Institute of Chemical Engineers (AICHE) is a professional society of chemical engineers. AICHE develops chemical engineering curricula and sponsors a variety of chemical study forums. AICHE is split into twelve divisions including the Environmental, Forest Products, Fuels and Petrochemical, and Safety and Health divisions. Approximately fourteen publications are produced by AICHE, such as the quarterly *Environmental Progress*, a periodic directory of members, and a variety of pamphlets. AICHE holds three conferences per year in various locations.

Color Pigments Manufacturer's Association, Inc.
300 N. Washington St., Ste. 102
Alexandria, VA 22314
Phone: (703) 684-4044 Members: 50
Fax: (703) 684-1795 Staff: 5

The Color Pigments Manufacturer's Association (CPMA) represents North American manufacturers of pigments and pigment ingredients (i.e., dyes). The CPMA also represents the affiliates of manufacturers of those products who happen to manufacture the product overseas. The CPMA represents its membership before government agencies. No further information is available at this time.

Fire Retardant Chemical Association
851 New Holland Ave., Box 3535
Lancaster, PA 17604
Phone: (717) 291-5616 Members: 42
Fax: (717) 295-4538 Staff: 5

Chemical distributors/manufacturers active in promoting fire safety through chemical technology comprise the Fire Retardant Chemical Association (FRCA), founded in 1973. The FRCA serves as a forum for

information dissemination on new developments, new applications, and current testing procedures for fire retardants and chemical fire safety products. Publications include the periodic *Fire Retardant Chemicals Association - Membership Directory* and the *Fire Retardant Chemical Association Proceedings.* Educational conferences are held semiannually.

National Paint and Coatings Association
1500 Rhode Island Avenue, NW
Washington, DC 20005
Phone: (202) 462-6272 Members: 700
Fax: (202) 462-8549 Staff: 40

Founded in 1933, the National Paint and Coatings Association (NPCA) represents manufacturers of paints and chemical coatings as well as suppliers of paint manufacturing equipment and raw materials. NPCA is involved in government relations programs, statistical surveys, and industry research. Committees include Labeling, Scientific, and Government Supply. The NPCA publishes an annual report, a periodic newsletter and trade directory, and a variety of guides. The NPCA holds an annual meeting.

Drug, Chemical, and Allied Trades Association
2 Roosevelt Ave., Suite 301
Syosset, NY 11791 Members: 500 Members: 500
Phone: 516-496-3317 Staff: 3 Staff: 3
Fax: 516-496-2231 Budget: $500,000

Drug, Chemical, and Allied Trades Association (DCAT) is comprised of drug, chemical, and related product (e.g., packaging, cosmetics, essential oils) manufacturers, advertisers, brokers, and importers. The association publishes *DCAT*, a monthly with coverage of federal regulations.

National Association of Chemical Recyclers
1875 Connecticut Ave., NW
Suite 1200
Washington, DC 20009
Phone: 202-986-8150 Members: 70
Fax: 202-986-2021 Staff: 3

National Association of Chemical Recyclers (NACR) founded in 1980, consists of recyclers of used industrial solvents. The organization promotes "responsible and intelligent" regulation and the beneficial reuse of waste. NACR monitors and reports on regulatory and legislative action

affecting the practice of solvent recycling. NACR also compiles industry statistics. NACR publishes *Flashpoint* and a semiannual membership list. NACR holds a semiannual conference, usually in April or October.

IX. CONTACTS/ACKNOWLEDGMENTS/RESOURCE MATERIALS/BIBLIOGRAPHY

For further information on selected topics within the organic chemical industry a list of publications and contacts are provided below:

Contacts[g]

Name	Organization	Telephone	Subject
Walter DeRieux	EPA/OECA	(202) 564-7067	Regulatory requirements and compliance assistance
Jim Gould	EPA Region VI	(713) 983-2153	Industrial processes and regulatory requirements (CAA, CWA)
David Langston	EPA Region IV	(404) 347-7603	Industrial resources and regulatory requirements (RCRA)
Jim Seidel	EPA/NEIC	(303) 236-5132	Industrial processes and regulatory requirements
Mary J. Legatski	Synthetic Organic Chemical Manufacturers Association	(202) 414-4100	Federal environmental requirements

CAA: Clean Air Act
CWA: Clean Water Act
OECA: Office of Enforcement and Compliance Assurance
NEIC: National Enforcement Investigations Center
RCRA: Resource Conservation and Recovery Act

General Profile

U.S. Industrial Outlook, 1994, Department of Commerce

Chemical and Engineering News, July 4, 1994 "Facts and Figures for the Chemical Industry." This information is produced annually.

[g] Many of the contacts listed above have provided valuable background information and comments during development of this document. EPA appreciates this support and acknowledges that the individuals listed do not necessarily endorse all statements made within this notebook.

United States International Trade Commission, Synthetic Organic Chemicals, United States Production and Sales, 1992. [Published annually]

1992 Census of Manufactures, Industry Series, Industrial Organic Chemicals, Bureau of the Census.

Process Descriptions and Chemical Use Profiles

Kirk-Othmer Encyclopedia of Chemical Technology (appropriate volumes)

Ullman's Encyclopedia of Chemical Technology (appropriate volumes)

SRI Chemical Economics Handbook (This is a proprietary data source and EPA's Regulatory Impacts Branch has a copy)

SRI Directory of Chemical Producers

Franck, H.G. and J.W. Stadelhofer, 1987. Industrial Aromatic Chemistry, Berlin: Springer-Verlag.

Perry, Robert H. and Cecil H. Chilton, "Chemical Engineers' Handbook" New York: McGraw-Hill Book Company.

Peters, Max S. and Klaus D. Timmerhaus, "Plant Design and Economics for Chemical Engineers," New York: McGraw-Hill Book Company.

Kent, J.(ed.) Reigel's Handbook of Industrial Chemistry, 1992. New York: von Nostrand Reinhold, Ninth Edition.

Shreve, Chemical Process Industries.

Szmant, H. Harry, 1989. Organic Building Blocks of the Chemical Industry, New York: John Wiley and Sons.

Tomes Plus Information System. Denver, CO: Micromedia, Inc. Contains information on chemical use, production, and health effects. (303) 831-1400.

Chemical Manufacturer's Association, Undated. Designing Pollution Prevention into the Process - Research, Development and Engineering.

U.S. Environmental Protection Agency, 1987. Development Document of Effluent Limitations Guidelines for the Organic Chemicals, Plastics and Synthetic Fibers Point Source Category, EPA 440/1-87/009.

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Hazardous Waste Consultant, Volume 12, October/November 1994. RCRA Land Disposal Restrictions: A Guide to Compliance, 1995 Edition.

Sustainable Environmental Law, Environmental Law Institute, West Publishing Co., St. Paul, Minn., 1993.

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